

October 25 Homework Problems

1. Solve the equation $y'' - 4y' = 0$ by first converting it to a system of first-order equations and as given. Provide a general solution and give details of your work.
2. Solve the following initial value problem by converting the equations into a single second-order equation: $y_1' = y_2 - 5 \sin t$ and $y_2' = -4y_1 + 17 \cos t$ with $y_1(0) = 5$ and $y_2(0) = 2$.
3. Find the power series solution of the differential equation $y'' - 3y' + 2y = 0$.